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ABSTRACT

This study reviewed scores on measures required to determine students' eligibility for a newly expanded gifted and talented program for grades 3-5. Teachers had recommended 162 students to the program in the 1998-1999 school year, and of these, 100 met requirements for the program based on an ability test. The researchers conducted analyses of variance to explore differences in each set of scores for students who met eligibility requirements and students who did not. Correlation analyses investigated the relationships between measures. Students' scores on a teacher rating scale showed no correlation with scores on the standardized measures, although ability and achievement scores did show correlation with each other. Based on the results of this study, the school district will review the measures used as criteria for eligibility to the district's gifted and talented program, particularly the teacher rating scale that has been used traditionally in the district. (SLD)

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Analysis of Ability and Achievement Scores for Students Recommended by Classroom Teachers to a Gifted and Talented Program

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Abstract

This study reviewed scores on measures required to determine students' eligibility to a newly expanded Gifted and Talented Program, grades 3-5. The researchers conducted analysis of variance to explore differences in each set of scores for students who met eligibility requirements and students who did not meet eligibility requirements. Correlation analyses investigated relationships between measures. Students' scores on a teacher rating scale showed no correlation with scores on the standardized measures, although ability and achievement scores did show correlation with each other. Based upon the results of this study, the district will review the measures used as criteria for eligibility to the district's Gifted and Talented Program, particularly the teacher rating scale that has been used traditionally in the district.

Analysis of Ability and Achievement Scores for Students Recommended by Classroom Teachers to a Gifted and Talented Program

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Background

The Gifted and Talented Program in the district's intermediate schools (serving students in grades 3, 4, and 5) was expanded in 1998-99. Previously, the program had been offered in pull-out enrichment sessions that included nongraded groups of students with one teacher sharing her time between the schools. Beginning September 1998, the program was expanded to full-day classes in which children were grouped by grade and met once a week, with each grade meeting a different day. Each school was assigned its own teacher. An interdisciplinary curriculum that was developed and implemented for each grade emphasized higher order thinking skills.

Eligibility for placement in the original Gifted and Talented Program was based on quantitative standardized measures of student ability and of student achievement in reading and mathematics. To be placed in the Gifted and Talented Program, students must achieve a minimum IQ score of 130, on the verbal, quantitative, or nonverbal subtests and a score at the 95th percentile on achievement tests in reading or mathematics. The tests were administered district-wide to the entire student population at targeted grades.

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In addition to standardized ability and achievement tests, teachers completed a rating scale for each child whose scores reached levels that were pre-established by a district committee The locally-developed rating scale consisted of nine items designed to measure students' learning characteristics, eight items for pupil motivational characteristics, and ten items for creativity characteristics

Teacher observation and recommendation sheets commonly are used in school settings to identify youngsters for placement in Gifted and Talented Programs (Watson 1974, Renzulli and Stoddard, 1980). Singer (1992) is one author among many who reported particular groups of characteristics compiled by teachers to identify students for placement in Gifted and Talented Programs. LaFrance (1994) reported that interviews with elementary school teachers confirm that teachers were aware of characteristics typical of gifted children. Researchers have consistently found that teachers believe that that their observations are the best criteria for valid recommendations of students to Gifted and Talented Programs (McBride, 1992), effective and efficient (Borland, 1978), and essentially most correct (Ashman and Vukelich, 1983).

Our local district administration supported the belief that teacher observations were an important part of the student placement decision. The administration believed that a teacher rating scale would provide important information about the likelihood of student success, thereby agreeing with McCarney and Anderson (developers of the Gifted Evaluation Scale, Second

Edition) who stated that teachers were in the best position of all observers to compare students' learning and behavior and identify students with exceptional skills

Method

Problem

It became evident, over the 1998-99 school year, that students' scores on ability and achievement tests did not predict success. Students who attained the requisite scores did not necessarily participate effectively in the newly expanded Gifted and Talented Program and/or were unable to sustain success in the regular classroom where there were responsible for work missed on the one-day a week that they were out of the classroom.

Moreover, teachers were taking initiative and submitting strong rating scale assessments for students who attained scores on the ability and achievement tests that did not meet minimum criteria for placement in the Gifted and Talented Program. That is, teachers perceived certain students as having potential for success in the newly expanded Gifted and Talented Program even though the students had not attained the minimum ability test and achievement test scores that were required for eligibility into the program. Teachers submitted these unauthorized rating scales with assertions (both oral and written) that the district's placement decisions should consider teachers' professional opinions based upon interaction with and knowledge of the students

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Procedure

The researchers collected data for all students who were recommended to the Gifted and Talented Program. The data included students' scores on ability tests (quantitative, verbal, and nonverbal scores on the *Cognitive Ability Test*), scores on achievement tests (mathematics score on the *California Achievement Test*, and percentile scores on the *Degrees of Reading Power*), and scores on the locally developed teacher rating scale. Descriptive statistics were computed and data analyzed using multiple 2 x 3 analysis of variance to explore differences in each set of scores (by grade level) for students who met eligibility requirements and students who did not meet eligibility requirements. Correlation analyses investigated relationships between measures on the teacher rating scale for students who met program eligibility requirements and scores on each of the ability and achievement measures.

Results

Teachers recommended a total of 162 students currently in grades 3, 4, and 5 to the Gifted and Talented Program for the 1998-1999 academic year. Of the recommended students, 100 students met requirements for entry to the Gifted and Talented Program based on their scores on the *Cognitive Ability Test*, a standardized paper-and-pencil ability test administered to all students in targeted grades. Sixty-two students did not meet the criteria for entry to the Gifted and Talented Program with discrepant numbers of referrals especially marked at grade 4. (See Table 1.)

Several students who were selected for participation in the Gifted and Talented Program declined the placement. Others who initially accepted the placement chose to withdraw early in the year. A recurrent problem concerned scheduling. That is, students who participated in the Gifted and Talented Program missed "specials" in art or music or library or computer lab or physical education that happened to conflict with the assigned regular class day. Thus, several students (that is, parents of students) who declined participation in the Gifted and Talented Program referred to these scheduling conflicts as the reason for withdrawing; the students did not want to miss the "specials." (The meeting days for the Gifted and Talented classes were rotated mid-year so as to allow a half-year of participation in certain "specials," forcing lack of participation in others that would meet on the new day.) Also, several students withdrew from the program for various other reasons. Analyses were based on total students participating in the Gifted and Talented Program as of April 1999.

Comparison of Criterion Scores for Eligible and NonEligible Students

For each of the criterion measures, the researchers used analysis of variance to compare scores for students who were eligible for placement in the Gifted and Talented Program with scores for students who were not eligible for placement in the Gifted and Talented Program. (The not-eligible population consisted of students below the requisite scores for whom a rating scale had been submitted.)

Significant differences between the eligible and the non-eligible students were evidenced on the following measures:

- nonverbal ability test,
- verbal ability test,
- total ability test, and
- reading achievement test.

No significant differences between the eligible and the non-eligible students were evidenced on the quantitative ability test, the mathematics achievement test, or the teacher rating scale. Also, even though more students were referred at grade 4 than for the other grades, grade level was not related to eligibility group.

Tables 2 through 5 present the results for analysis of variance for those measures on which students who were eligible for the Gifted and Talented Program differed from students who were not eligible for the Gifted and Talented Program.

Correlation of Criterion Measures

Bivariate correlation analysis (see Table 6) for eligibility criteria to the Gifted and Talented Program found significant association between the following scores only:

- CogAT verbal and nonverbal scores (negative correlation),
- CogAT verbal and quantitative scores, and
- CogAT verbal and DRP scores.

Scores on the mathematics achievement test evidenced no correlation with any other variable, but there was a possible tendency to align with the CogAT quantitative score.

Students' scores on the rating scale showed no correlation with scores on the standardized measures, although ability and achievement scores did show correlation with each other

Discussion

This study has found an absence of any relationship between the standardized measures used as eligibility criteria for grade 3, 4, and 5 students to the Gifted and Talented Program and a teacher rating scale. Yet, teachers assert - and both the research literature and district administrators support the assertion - that teacher observation of student learning behavior and attitudes in the classroom may be a better predictor of student success in a Gifted and Talented Program than scores on pencil-and-paper standardized tests.

A discrepancy between theory and belief on the one hand, and traditional practice on the other, speaks to a need to review the measures used as criteria for eligibility to the district's Gifted and Talented Program. In particular, the teacher rating scale that has been used in the district emerges as object for scrutiny for two reasons: (a) the rating scale was the one measure in this study which produced scores showing no relationship with scores on the other measures, and (b) the rating scale used by the district was the one measure that has been neither validated nor standardized.

Initially, the teacher rating scale had been developed locally based upon characteristics that were identified in the research literature to identify the extent to which students demonstrated learning, motivational, and creativity. Nevertheless, the district had made no attempt to analyze the items or validate the instrument as a whole.

The district made a tentative decision to retain the rating scale to the extent possible because teachers preferred to retain a familiar format. Future research will examine the validity of the rating scale, and the district will revise the rating scale as needed. The goal is to use the rating scale to identify students who will be most likely to demonstrate behavioral and attitudinal characteristics (in additional to the high scores on achievement and ability tests) that support success in a Gifted and Talented Program. A District Committee for the Gifted and Talented has already begun reviewing items on the teacher rating scale for clarity and precision.

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Table 1

Number of Recommendations of Students to the Gifted and Talented Program

By Eligibility (based on ability and achievement scores) and Grade Level

	eligible	not eligible	total
grade 3	35	8	43
grade 4	24	40	64
grade 5	41	14	55
total students	100	62	162

Table 2

Descriptive Data and Analysis of Variance for Scores on Nonverbal Ability Test for Eligible and Non-Eligible Students

	n	mean	sd	min	Max
eligible	99	130 08	13 54	100	155
not eligible	55	114 65	16 43	12	128
total	154	124 57	16 36		

		df	ms	F	sig
between groups	8413 924	1	8413 924	39 293	000
wtthin groups	32547 790	152	214 130		
total	40961 714	153			

Table 3

Descriptive Data and Analysis of Variance for Scores on Verbal Ability Test for Eligible and Non-Eligible Students

	n	mean	sd	min	max
eligible	99	121 79	14 00	80	155
not eligible	55	113 60	8 55	92	128
total	154	118 86	12 92	80	155

	ss	df	ms	F	sig
between groups	2370 391	1	2370 391	15 558	000
within groups	23157 745	152	152 354		
total	25528 136	153			

Table 3

Descriptive Data and Analysis of Variance for Scores on Total Ability Test for Eligible and Non-Eligible Students

	n	mean	sd	min	max
eligible	98	248 08	25 38	127	310
not eligible	55	228 25	18 33	134	250
total	153	240 95	24 93	127	310

	ss	df	ms	F	sig
between groups	13848 896	1	13848 896	25 943	000
within groups	80605 783	151	533 813		
total	94454 680	152			

Table 5

Descriptive Data and Analysis of Variance for Scores on Reading Achievement Test for Eligible and Non-Eligible Students

	n	mean	sd	min	max
eligible	95	93.63	9.35	37	99
not eligible	55	96.96	2.42	87	99
total	150	94.85	7.74	37	99

	ss	df	ms	F	sig
between groups	386.741	1	386.741	6.704	.011
within groups	8538.033	148	57.689		
total	8924.773	149			

Table 6

Bivariate Correlation for Eligibility Criteria

		achievement mathematics	IQ Nonverbal	IQ verbal	IQ Quantitative	achievement reading	teacher rating
achievement mathematics	Pearson Correlation	1.000	.044	-.062	.373	-.059	.177
	Sig. (2-tailed)		.677	.554	.056	.575	.152
	N	95	94	94	27	94	67
IQnonverbal	Pearson Correlation	.044	1.000	-.214	.343	-.003	-.075
	Sig. (2-tailed)	.677		.033*	.059	.974	.544
	N	94	100	100	31	97	68
IQverbal	Pearson Correlation	-.062	-.214	1.000	.406	.353	.062
	Sig. (2-tailed)	.554	.033		.023*	.000**	.615
	N	94	100	100	31	97	68
IQQuantitative	Pearson Correlation	.373	.343	.406	1.000	.288	
	Sig. (2-tailed)	.056	.059	.023		.122	
	N	27	31	31	31	30	0
achievement reading	Pearson Correlation	-.059	-.003	.353	.288	1.000	.217
	Sig. (2-tailed)	.575	.974	.000	.122		.078
	N	94	97	97	30	97	67
teacher rating scale	Pearson Correlation	.177	-.075	.062		.217	1.000
	Sig. (2-tailed)	.152	.544	.615		.078	
	N	67	68	68	0	67	68

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

. Cannot be computed because at least one of the variables is constant

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